



SAFETY DATA SHEET ASCORBIC ACID REVISION 5, DATE 08 JAN 23

1. IDENTIFICATION

Product Name	Ascorbic acid
Other Names	Ascorbic Acid EC97; Coated Ascorbic Acid 97%; Vitamin C
Uses	Food, feed and pharmaceutical applications.
Chemical Family	No Data Available
Chemical Formula	C ₆ H ₈ O ₆
Chemical Name	L-Ascorbic acid
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

Not Scheduled



Globally Harmonised System

Hazard Classification	NOT hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Signal Word	None

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

Hazard Classification	NOT hazardous according to the criteria of Safe Work Australia under Model WHS Regulations
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3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Ascorbic acid	C6H8O6	50-81-7	>=95 - 100 %
Ingredients determined not to be hazardous	Unspecified	Unspecified	Balance %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth with water. Do not induce vomiting. Get medical advice/attention if you feel unwell.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
Skin	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention.
Advice to Doctor	Treat symptomatically.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Combustible solid; may burn but does not ignite readily.

Extinguishing Media	Use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction.
Fire and Explosion Hazard	Avoid generating dust; Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard.
Hazardous Products of Combustion	Fire may produce irritating and/or toxic gases, including Carbon oxides.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may cause pollution.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. ELIMINATE all ignition sources (if dust clouds can occur). Do not touch or walk through spilled material. Avoid generating dust. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Carefully shovel or sweep up spilled material and place in suitable container for disposal (see SECTION 13). *Use non-sparking tools!
Containment	Stop leak if you can do it without risk. Prevent dust cloud. Prevent entry into waterways, sewers, basements or confined areas.
Decontamination	After cleaning, flush away traces with water.
Environmental Precautionary Measures	Prevent entry into drains and waterways.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Minimise dust generation and accumulation. Avoid breathing dust and contact with eyes, skin and clothing. Use personal protective equipment as required (see SECTION 8). WARNING: May form combustible dust concentrations in air! Keep away from heat and sources of ignition - No smoking. Take precautionary measures against static discharges.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Avoid exposure to air, light and moisture. Keep away from heat and sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10).
Container	Keep in the original container or suitable materials, i.e. stainless steel, coated steel, glass, polyethylene, polypropylene, enamel. *Unsuitable materials: Aluminium, copper, zinc, iron.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	Contains no substances with occupational exposure limit values. For dusts from solid substances without specific occupational exposure standards: - Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m ³ (measured as inhalable dust).
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Exposure Limits	- New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m ³ ; TWA = 3 mg/m ³ (respirable dust). No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or when dusts are generated. Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses. - Hand protection: Handle with gloves. Recommended: Impervious gloves, e.g. Nitrile rubber. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes/boots.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of the workday. Take off contaminated clothing and wash it before reuse. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystalline powder or granules
Odour	Almost odourless
Colour	White, almost white to yellowish
pH	2.1 - 2.6 (5 % aqueous solution)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	~190 °C (decomposition)
Freezing Point	No Data Available
Solubility	Soluble in water; Soluble in ethanol - Virtually insoluble in ethyl ether & chloroform
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	176.12 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available

VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Avoid generating dust; Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Combustible solid; may burn but does not ignite readily.
Reactions That Release Gases or Vapours	Fire/decomposition may produce irritating and/or toxic gases, including Carbon oxides.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	Sensitive to air, light and moisture.
Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Avoid exposure to air, light and moisture. Avoid generating dust. Keep away from heat and sources of ignition. Take precautionary measures against static discharges.
Materials to Avoid	Incompatible/reactive with oxidising agents, alkalis, metals and metal salts (e.g. aluminium, zinc, copper, copper alloys, metal ions).
Hazardous Decomposition Products	Fire/decomposition may produce irritating and/or toxic gases, including Carbon oxides.
Hazardous Polymerisation	Hazardous polymerisation does not occur.

11. TOXICOLOGICAL INFORMATION

General Information	Information on toxicological effects: - Acute toxicity: Animal studies support the low toxicity of this substance. - Skin corrosion/irritation: Non-irritating (Rabbit) [OECD 404; SIDS]. - Serious eye damage/irritation: Non-irritating (Rabbit) [OECD 405; SIDS]. - Respiratory/skin sensitisation: No information available. - Germ cell mutagenicity: No suspicion of human mutagenicity. - Carcinogenicity: Not carcinogenic. - Reproductive toxicity: Not teratogenic, not embryo toxic. - STOT (single exposure): No information available. - STOT (repeated exposure): No information available. - Aspiration toxicity: No information available. Information on possible routes of exposure: - Ingestion: Intakes of relatively high dose levels of ascorbic acid in humans (up to 1 gram per day or more) do not result in any significant adverse health effects; however, may cause diarrhoea. - Eye contact: May cause irritation. - Skin contact: May cause irritation (particularly with humidity/perspiration). - Inhalation: May cause irritation (mucous membranes). Chronic effects: Chronic ingestion of large doses may cause gastrointestinal disturbances including nausea and diarrhoea, urinary effects involving urine acidification, oxalate and uric crystallisation in the bladder and kidney.
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Acute**Ingestion**

Acute toxicity (Oral):
- LD50, Rat: 11,900 mg/kg [Supplier's SDS].
- LD50, Mouse: 8,000 mg/kg [Supplier's SDS].

Carcinogen Category

None

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Aquatic toxicity:
- LC50, Fish (Oncorhynchus mykiss): 1,020 mg/l (96 h) (No adjustment to the pH).
- LC50, Fish (Oncorhynchus mykiss): >1,000 mg/l (96 h) (The pH of the solution was adjusted to 7.5).
*No deaths were seen at 1,000 mg/l.

Persistence/Degradability

Biodegradable (97%, 5 d).

Mobility

L-Ascorbic acid is very soluble in water, has a low octanol-water partition coefficient (log Kow = -2.05) and is likely to have a very low vapour pressure at ambient temperature. These properties indicate that it is likely to partition mainly into the water phase, with very little distributing into the atmosphere. The substance is unlikely to adsorb strongly onto soil or sediment.

Environmental Fate

Prevent entry into drains and waterways.

Bioaccumulation Potential

The substance is unlikely to bioaccumulate.

Environmental Impact

No Data Available

13. DISPOSAL CONSIDERATIONS**General Information**

Dispose of contents/container in accordance with local/regional/national regulations.

Special Precautions for Land Fill

Large amounts: Incinerate in qualified installation.

14. TRANSPORT INFORMATION**Land Transport (Australia)**

ADG Code

Proper Shipping Name

Ascorbic acid

Class

No Data Available

Subsidiary Risk(s)

No Data Available

No Data Available

UN Number

No Data Available

Hazchem

No Data Available

Pack Group

No Data Available

Special Provision

No Data Available

Comments

NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name

Ascorbic acid

Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Ascorbic acid
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name	Ascorbic acid
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Ascorbic acid
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Ascorbic acid
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	Not Hazardous
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National/Regional Inventories

Australia (AIIIC)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	200-066-2
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined

Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Listed

16. OTHER INFORMATION

Related Product Codes	ASACID0400, ASACID0450, ASACID0500, ASACID0600, ASACID0616, ASACID0700, ASACID0800, ASACID1000, ASACID1001, ASACID1002, ASACID1003, ASACID1004, ASACID1005, ASACID1006, ASACID1007, ASACID1008, ASACID1009, ASACID1010, ASACID1011, ASACID1012, ASACID1013, ASACID1014, ASACID1015, ASACID1016, ASACID1017, ASACID1018, ASACID1019, ASACID1020, ASACID1021, ASACID1022, ASACID1023, ASACID1024, ASACID1025, ASACID1026, ASACID1027, ASACID1028, ASACID1029, ASACID1030, ASACID1031, ASACID1032, ASACID1033, ASACID1034, ASACID1035, ASACID1036, ASACID1037, ASACID1038, ASACID1039, ASACID1040, ASACID1041, ASACID1042, ASACID1043, ASACID1044, ASACID1045, ASACID1046, ASACID1047, ASACID1048, ASACID1049, ASACID1050, ASACID1051, ASACID1052, ASACID1053, ASACID1054, ASACID1055, ASACID1056, ASACID1057, ASACID1058, ASACID1059, ASACID1060, ASACID1061, ASACID1062, ASACID1063, ASACID1064, ASACID1065, ASACID1066, ASACID1067, ASACID1068, ASACID1069, ASACID1070, ASACID1071, ASACID1072, ASACID1073, ASACID1074, ASACID1075, ASACID1076, ASACID1077, ASACID1078, ASACID1079, ASACID1080, ASACID1085, ASACID1100, ASACID1200, ASACID1300, ASACID1400, ASACID1500, ASACID1501, ASACID1502, ASACID1503, ASACID1600, ASACID1700, ASACID1701, ASACID1702, ASACID1800, ASACID1900, ASACID2000, ASACID2001, ASACID2002, ASACID2020, ASACID2025, ASACID2026, ASACID2100, ASACID2200, ASACID2201, ASACID2202, ASACID2300, ASACID2400, ASACID3000, ASACID3100, ASACID3110, ASACID3115, ASACID3500, ASACID3600, ASACID3700, ASACID4000, ASACID4010, ASACID4100, ASACID4120, ASACID4200, ASACID4201, ASACID4300, ASACID4400, ASACID4500, ASACID4600, ASACID4700, ASACID4800, ASACID4900, ASACID5000, ASACID5001, ASACID5100, ASACID5200, ASACID5300, ASACID5400, ASACID5500, ASACID5600, ASACID5601, ASACID5602, ASACID5603, ASACID5700, ASACID5701, ASACID5800, ASACID5900, ASACID6000, ASACID6001, ASACID6002, ASACID6003, ASACID6100, ASACID6101, ASACID6102, ASACID6103, ASACID6104, ASACID6105, ASACID6106, ASACID6107, ASACID6108, ASACID6109, ASACID6110, ASACID6111, ASACID6112, ASACID6113, ASACID6114, ASACID6115, ASACID6116, ASACID6150, ASACID6190, ASACID6200, ASACID6201, ASACID6202, ASACID6225, ASACID6250, ASACID6255, ASACID6257, ASACID6300, ASACID6301, ASACID6330, ASACID6400, ASACID6401, ASACID6402, ASACID6403, ASACID6404, ASACID6405, ASACID6406, ASACID6500, ASACID6501, ASACID6502, ASACID6503, ASACID6504, ASACID6505, ASACID6510, ASACID6511, ASACID6512, ASACID6600, ASACID6601, ASACID6700, ASACID6701, ASACID6800, ASACID6801, ASACID6900, ASACID6901, ASACID7000, ASACID7100, ASACID7200, ASACID7201, ASACID7300, ASACID7400, ASACID7500, ASACID8000, ASACID8100, ASACID8200, ASACID8300, ASACID8301, ASACID8400, ASACID8401, ASACID8402, ASACID8403, ASACID8410, ASACID8415, ASACID8416, ASACID8420, ASACID8425, ASACID8500, ASACID8600, ASACID8900, ASACID9000, ASACID9010, ASACID9015, ASACID9020, ASACID9030, ASACID9040, ASACID9050, ASACID9055, ASACID9070, ASACID9100, ASACID9200, ASACID9500, ASACID9700, BINBAG5500, BINBAG5501, BINBAG5514, BINBAG8415, BINBAG8416, BINBAG8417, BINBAG8418
Revision	5
Revision Date	08 Jan 2023
Reason for Issue	SDS Updated
Key/Legend	< Less Than > Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health

immiscible Liquids are insoluble in each other.

inHg Inch of Mercury

inH₂O Inch of Water

K Kelvin

kg Kilogram

kg/m³ Kilograms per Cubic Metre

lb Pound

LC₅₀ LC stands for lethal concentration. LC₅₀ is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD₅₀ LD stands for Lethal Dose. LD₅₀ is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or **L** Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Health and Safety Commission

OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million

ppm/2h Parts per Million per 2 Hours

ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average

ug/24H Micrograms per 24 Hours

UN United Nations

wt Weight